IT-B1

SERVICE MANUAL

Canadian Model
Central & South America Model

Photo: WHITE Type

SPECIFICATIONS

Dial signal	Tone, 10 PPS (pulse) selectable
Dimensions	Approx. 69 × 74.5 × 225 mm (w/h/d) (Approx. 2 3/4 × 3 × 8 7/8 inches)
Mass	Approx. 485 g (Approx. 17 oz), attachments included
Supplied accessories	• Telephone line cords (2) • Handset cord

Design and specifications are subject to change without notice.

Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

TELEPHONE

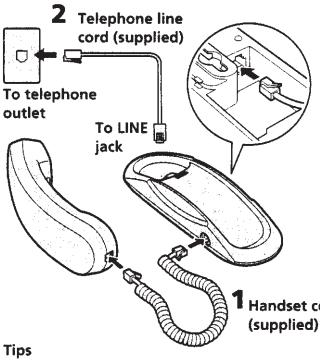
MICROFILM

SONY®

This section is extracted from instruction manual.

Setting up the phone

Connect the phone



1 Connect the handset cord (supplied) to the handset, and to the phone.

2 Connect the telephone line cord (supplied) to the LINE jack on the bottom of the phone, and to a telephone outlet.

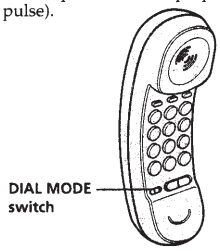
Tips

- If your telephone outlet is not modular, contact your telephone service company for assistance.
- If you want to hang the phone on the wall, see "Mounting the phone on a wall".

Modular

Choose the dialing mode

For the phone to work properly, select an appropriate dialing mode (tone or pulse).



Depending on your dialing system, set the DIAL MODE switch as follows:

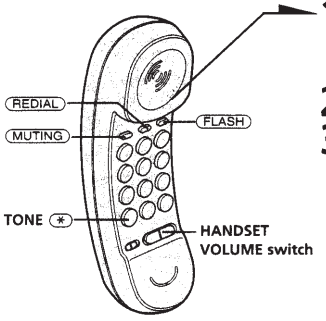
If your dialing system is to	Set the switch
Tone	T
Pulse	P

If you aren't sure of your dialing system

Make a trial call with the DIAL MODE switch set to T. If the call connects, leave the switch as is; otherwise, set to P.

Making and receiving calls

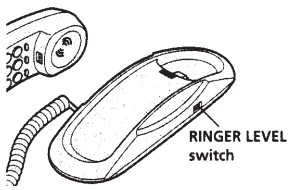
Making a call



1 Pick up the handset.
The dialing keys light up.
You hear a dial tone.

2 Dial a phone number.

3 When you're done talking, replace the handset in the cradle.
The call is disconnected.



Receiving a call

When you hear the phone ring, pick up the handset. When you're done talking, replace the handset in the cradle.

Additional tasks

To	Do this
Adjust the ringer volume	Set the RINGER LEVEL switch to H (high), L (low) or OFF.
Adjust the handset volume	Set the HANDSET VOLUME switch to H (high), M (middle) or L (low).
Switch to tone dialing temporarily	Press TONE (*) after you're connected. The line will remain in tone dialing until disconnected.
Mute a call	Press and hold MUTING. While pressing MUTING you can hear the other party but the other party cannot hear you.
Switch to another call ("call waiting" service*)	Press FLASH. Press FLASH again to get back to the first caller.

* Contact your telephone company to subscribe to this service.

Redialing

You can redial the last number called with just one touch of the REDIAL button. This lets you easily redial the same number again if, for example, the line was busy.

1 Pick up the handset.
The dialing keys light up.
You hear a dial tone.

2 Press REDIAL.

Note

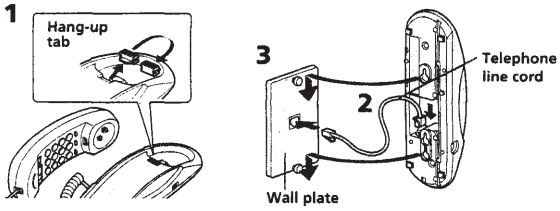
You can redial the number which consists of up to 31 digits, including a press of tone, which is counted as one digit.

Mounting the phone on a wall

1 Reverse the hang-up tab.

2 Plug the telephone line cord to the LINE jack and to the telephone outlet. Use the shorter cord for mounting.

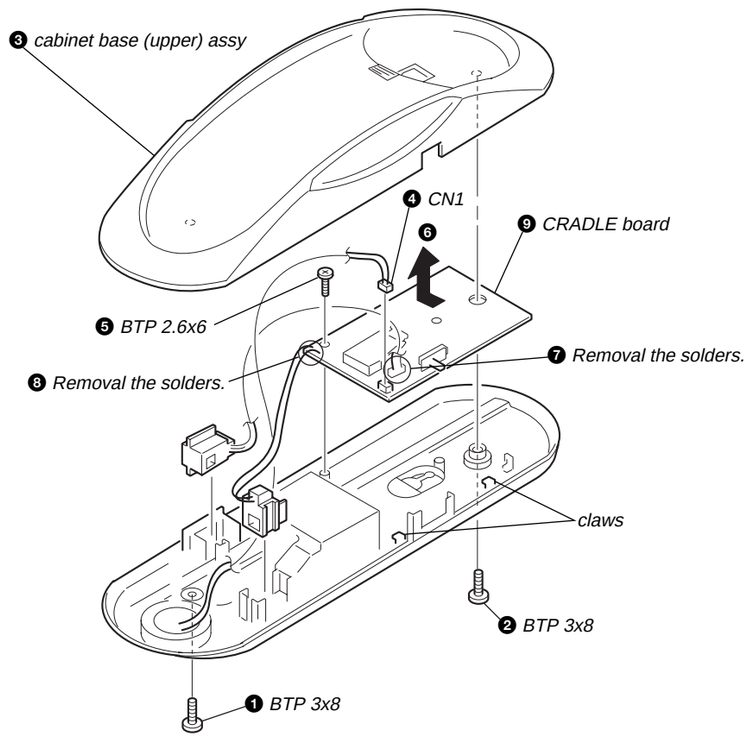
3 Hook the phone to the wall plate.



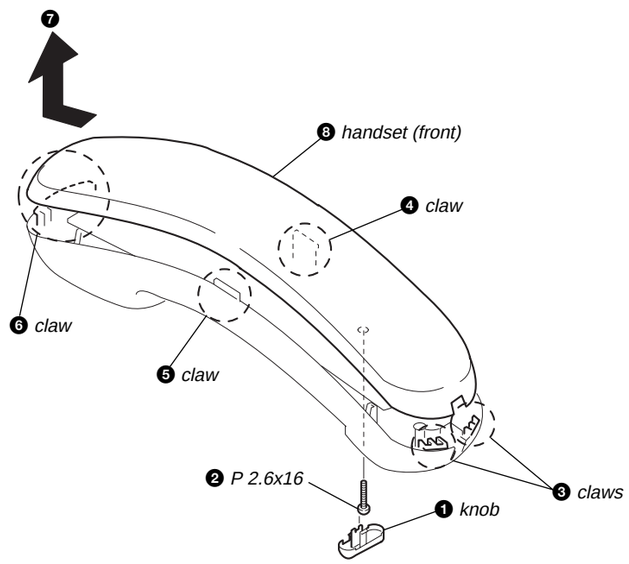
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

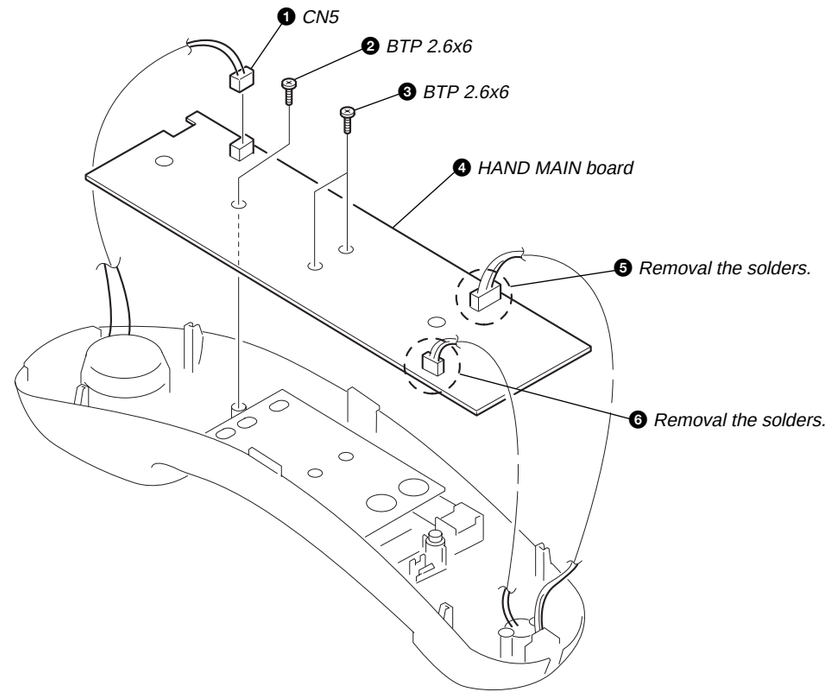
2-1. CRADLE BOARD



2-2. HANDSET (FRONT)

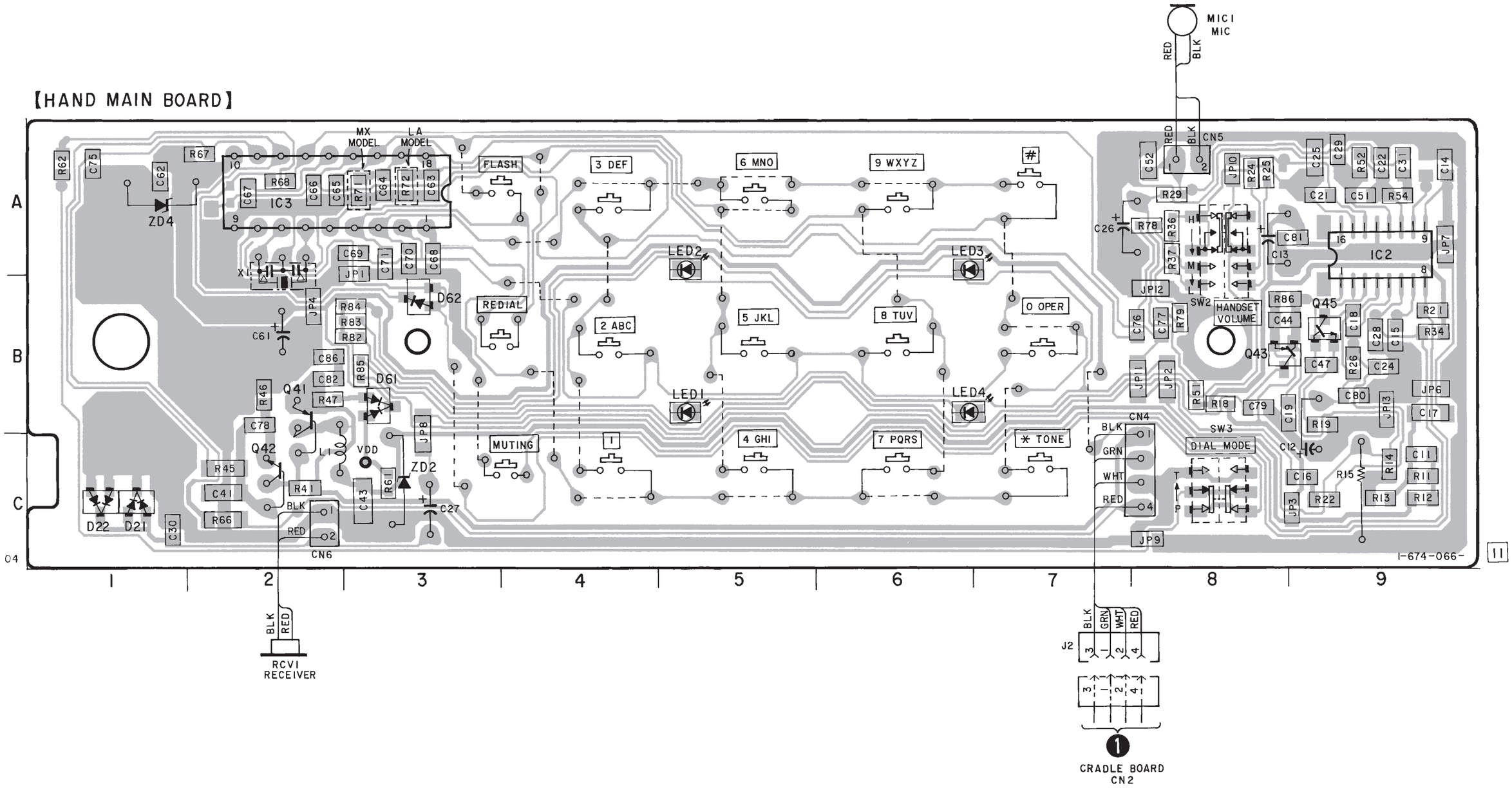


2-3. HAND MAIN BOARD



SECTION 3
DIAGRAMS

3-1. PRINTED WIRING BOARD — HANDSET SECTION —

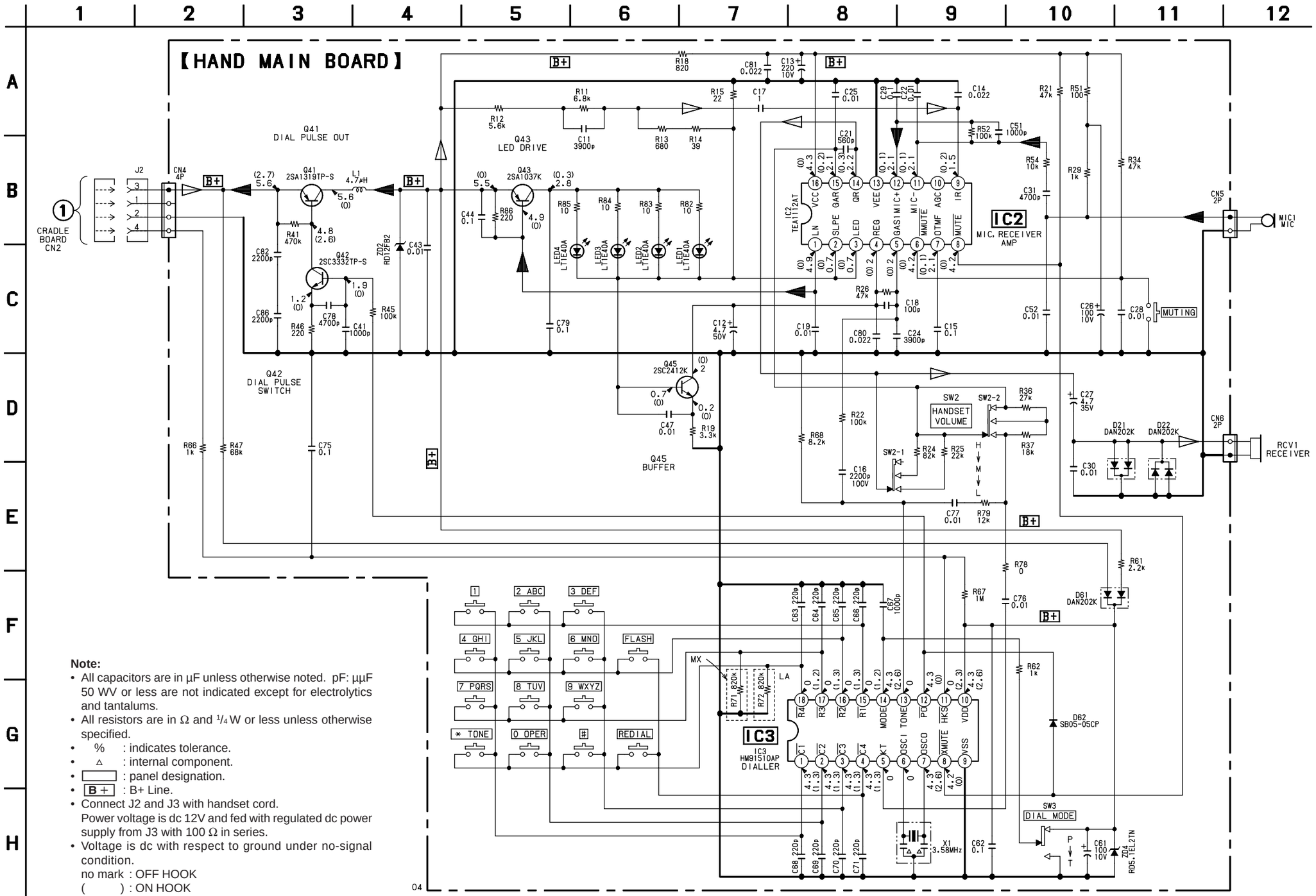


• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D21	C-1	LED3	A-6
D22	C-1	LED4	B-6
D61	B-3		
D62	B-3	Q41	B-2
		Q42	C-2
IC2	A-9	Q43	B-8
IC3	A-2	Q45	B-9
LED1	B-5	ZD2	C-3
LED2	A-5	ZD4	A-1

Note:
- ○——○ : parts extracted from the component side.
- ○- - -○ : Carbon pattern.
- △ : internal component.
- ▒▒ : Pattern from the side which enables seeing. (The other layer's patterns are not indicated.)
- Abbreviation
  MX : Mexican model
  LA : Latin American model

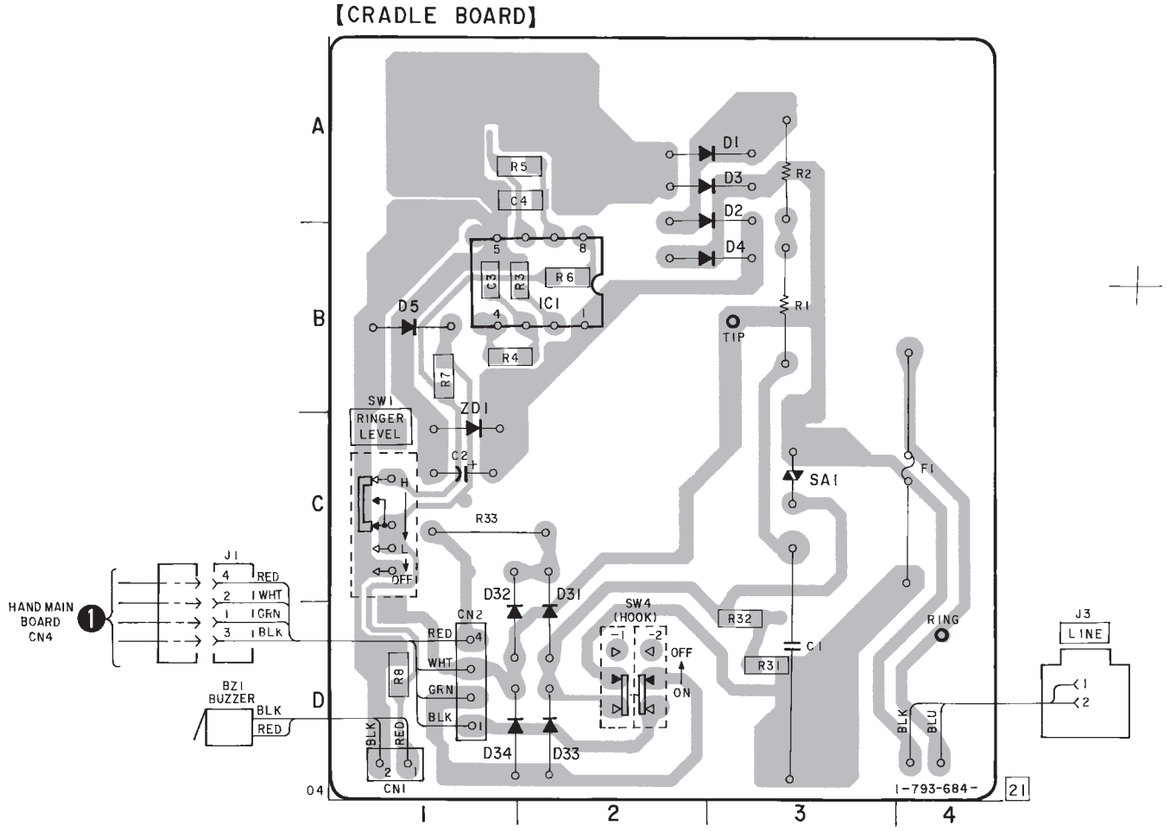
3-2. SCHEMATIC DIAGRAM — HANDSET SECTION — • Refer to page 7 for IC Block Diagrams.



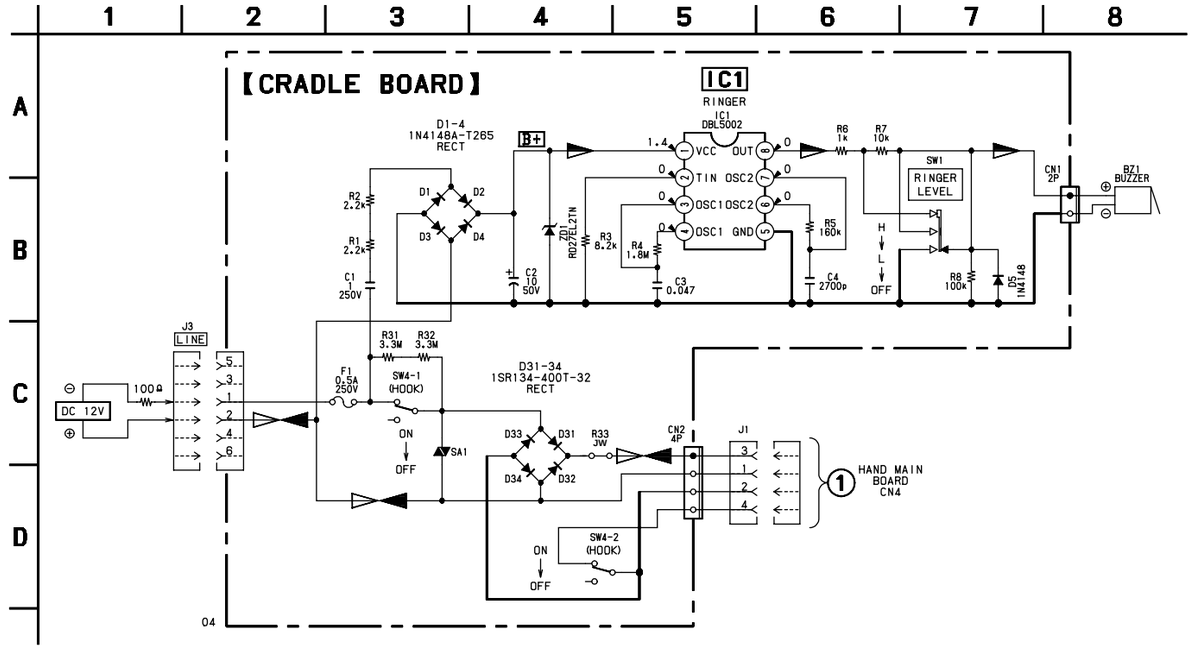
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- Connect J2 and J3 with handset cord. Power voltage is dc 12V and fed with regulated dc power supply from J3 with 100 Ω in series.
- Voltage is dc with respect to ground under no-signal condition.
  no mark : OFF HOOK
  ( ) : ON HOOK
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ▷ : RX (from TEL LINE)
  ▶ : TX (to TEL LINE)
  ▶ : bell
- Abbreviation
  MX : Mexican model
  LA : Latin American model

3-3. PRINTED WIRING BOARD — CRADLE SECTION —



3-4. SCHEMATIC DIAGRAM — CRADLE SECTION —



• **Semiconductor Location**

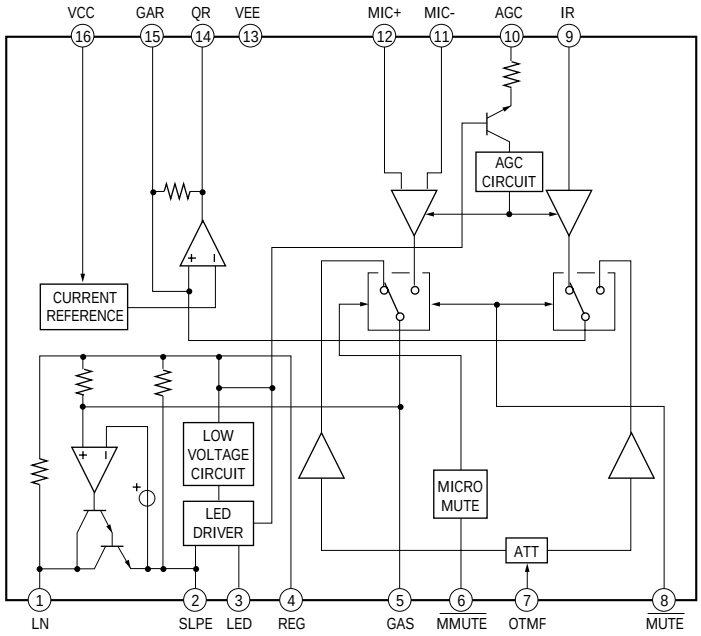
Ref. No.	Location	Ref. No.	Location
D1	A-3	D33	D-2
D2	A-3	D34	D-1
D3	A-3		
D4	B-3	IC1	B-2
D5	B-1		
D31	C-2	ZD1	B-1
D32	C-1		

Note:
- ○——— : parts extracted from the component side.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enables seeing. (The other layer's patterns are not indicated.)

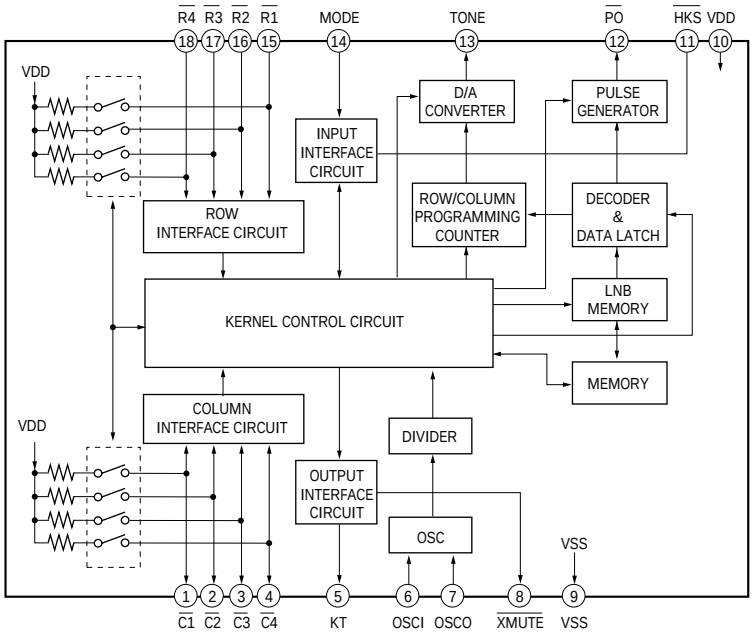
Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- Power voltage is dc 12V and fed with regulated dc power supply from J3 with 100 Ω in series.
- Voltage is dc with respect to ground under no-signal condition.
  no mark : OFF HOOK
  ( ) : ON HOOK
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ▷ : RX (from TEL LINE)
  ▶ : TX (to TEL LINE)
  ◥ : bell

• IC Block Diagrams

IC2 TEA1112AT



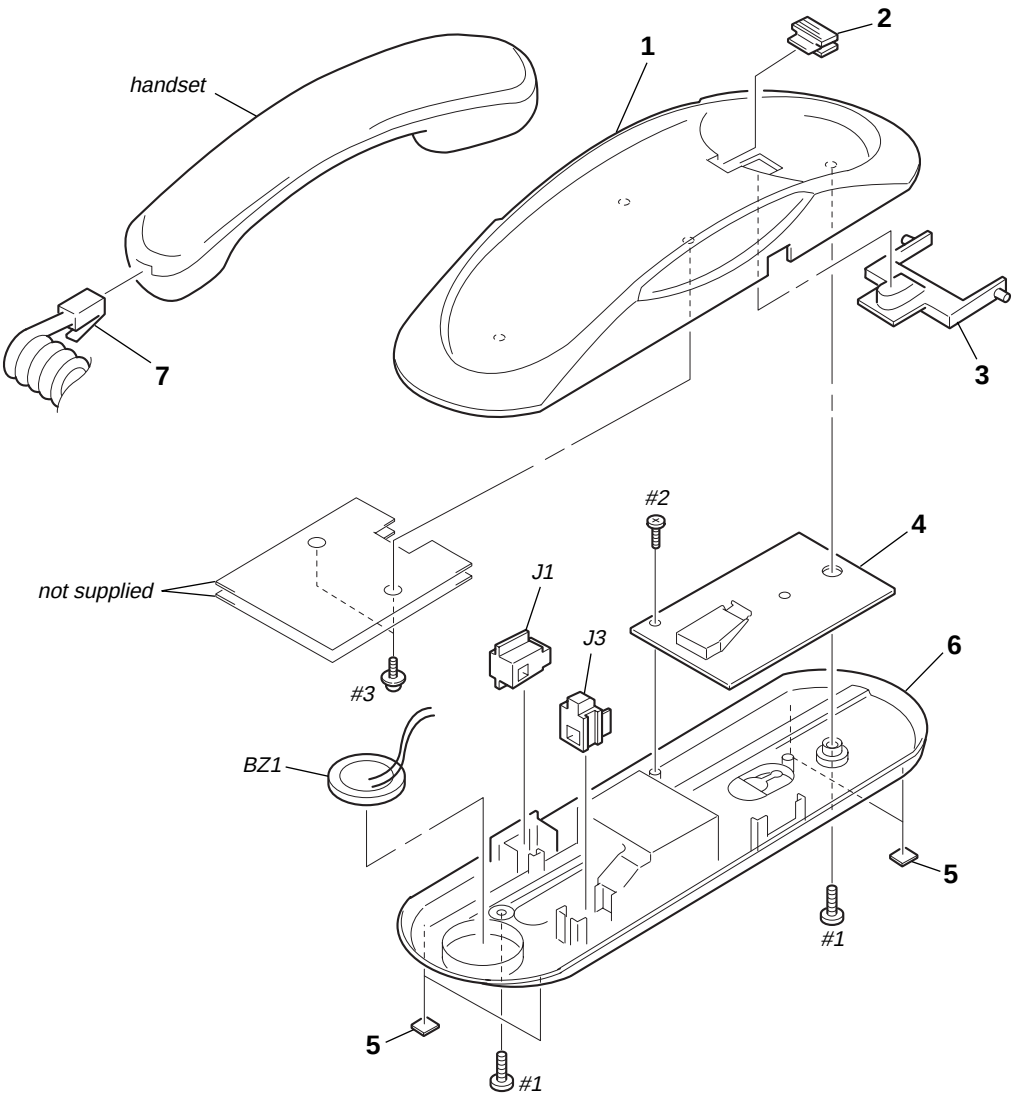
IC3 HM91510AP



SECTION 4
EXPLODED VIEWS

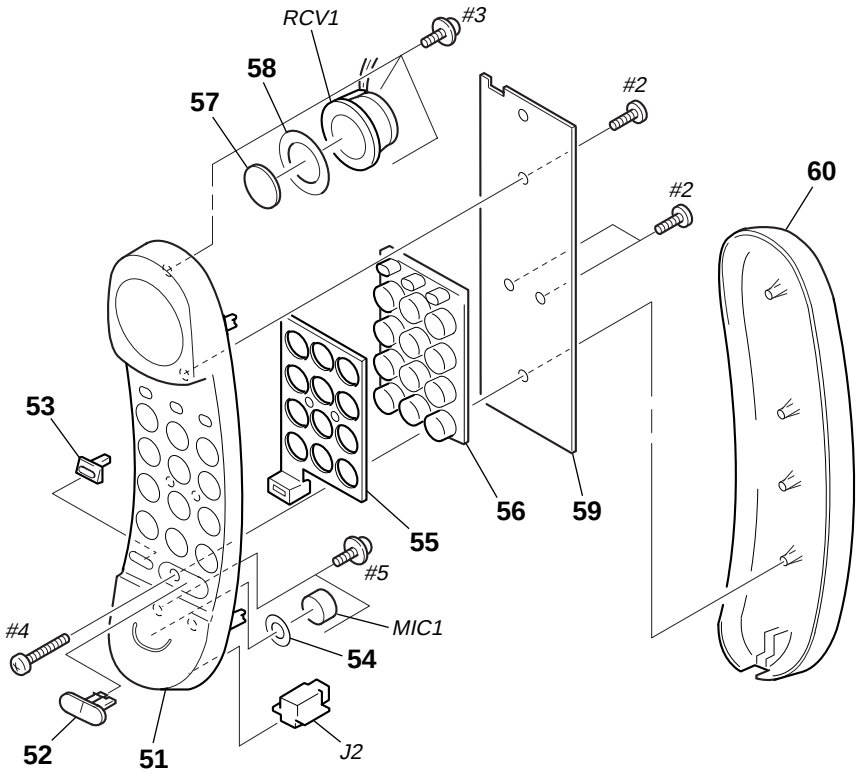
NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ Parts Color ↑ Cabinet's Color
- Accessories and packing materials are given in the last of this parts list.
- Abbreviation
  CND : Canadian model
  MX : Mexican model
  LA : Latin American model

4-1. CRADLE SECTION



Ref. No.	Part No.	Description	Remark
1	3-035-626-01	CABINET (UPPER) (GRAY)	
1	3-035-626-11	CABINET (UPPER) (WHITE)	
2	3-025-335-11	HANGER (H/S) (GRAY)	
2	3-025-335-21	HANGER (H/S) (WHITE)	
3	3-035-630-01	LEVER (HOOK) (GRAY)	
3	3-035-630-11	LEVER (HOOK) (WHITE)	
* 4	A-3622-327-A	CRADLE BOARD, COMPLETE	
5	3-937-739-01	FOOT (RUBBER)	
6	3-035-627-01	CABINET (LOWER) (GRAY)	
6	3-035-627-11	CABINET (LOWER) (WHITE)	
7	1-791-591-01	CORD, CURL (GRAY)	
7	1-791-591-11	CORD, CURL (WHITE)	
BZ1	1-529-516-11	BUZZER, PIEZOELECTRIC	
J1	1-695-256-41	JACK, MODULAR (H.S)	
J3	1-793-684-21	JACK, MODULAR (LINE)	

4-2. HANDSET SECTION



Ref. No.	Part No.	Description	Remark
51	3-035-629-01	HANDSET (REAR) (GRAY)	
51	3-035-629-11	HANDSET (REAR) (WHITE)	
52	3-035-633-01	KNOB (HANDSET VOLUME) (GRAY)	
52	3-035-633-11	KNOB (HANDSET VOLUME) (WHITE)	
53	3-035-632-01	KNOB (DIAL MODE) (GRAY)	
53	3-035-632-11	KNOB (DIAL MODE) (WHITE)	
54	3-380-436-01	CUSHION, MICROPHONE	
55	3-035-631-01	PLATE, LIGHT GUIDE	
56	1-771-726-11	SWITCH, RUBBER KEY	
57	3-041-783-01	CUSHION (RECEIVER)	
58	3-380-401-01	SPACER (SPEAKER)	
* 59	A-3622-326-A	HAND MAIN BOARD, COMPLETE (CND)	
* 59	A-3622-366-A	HAND MAIN BOARD, COMPLETE (MX)	
* 59	A-3622-367-A	HAND MAIN BOARD, COMPLETE (LA)	
60	3-035-628-01	HANDSET (FRONT) (GRAY)	
60	3-035-628-11	HANDSET (FRONT) (WHITE)	
J2	1-695-256-21	JACK, MODULAR (H.S)	
MIC1	1-542-161-11	MICROPHONE, ELECTRET CONDENSER	
RCV1	1-550-648-11	RECEIVER, DYNAMIC	

CRADLE **HAND MAIN**

SECTION 5
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH

When indicating parts by reference number, please include the board.

- Abbreviation
  CND : Canadian model
  MX : Mexican model
  LA : Latin American model

Ref. No.	Part No.	Description			Remark
*	A-3622-327-A	CRADLE BOARD, COMPLETE			
		**********			
		< BUZZER >			
BZ1	1-529-516-11	BUZZER, PIEZOELECTRIC			
		< CAPACITOR >			
C1	1-137-479-11	FILM	1uF	5%	400V
C2	1-126-964-11	ELECT	10uF	20%	50V
C3	1-104-760-11	CERAMIC CHIP	0.047uF	10%	50V
C4	1-163-215-00	CERAMIC CHIP	0.0027uF	10%	50V
		< CONNECTOR >			
* CN1	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D1	8-719-989-91	DIODE 1N4148A-T265			
D2	8-719-989-91	DIODE 1N4148A-T265			
D3	8-719-989-91	DIODE 1N4148A-T265			
D4	8-719-989-91	DIODE 1N4148A-T265			
D5	8-719-989-91	DIODE 1N4148A-T265			
D31	8-719-970-02	DIODE 1SR139-400T-32			
D32	8-719-970-02	DIODE 1SR139-400T-32			
D33	8-719-970-02	DIODE 1SR139-400T-32			
D34	8-719-970-02	DIODE 1SR139-400T-32			
		< FUSE >			
F1	1-533-713-11	FUSE (0.5A/250V)			
		< IC >			
IC1	8-759-595-76	IC DBL5002			
		< RESISTOR >			
R1	1-249-421-11	CARBON	2.2K	5%	1/4W
R2	1-249-421-11	CARBON	2.2K	5%	1/4W
R3	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R4	1-216-127-11	METAL CHIP	1.8M	5%	1/10W
R5	1-216-102-00	RES,CHIP	160K	5%	1/10W
R6	1-216-049-11	RES,CHIP	1K	5%	1/10W
R7	1-216-073-00	METAL CHIP	10K	5%	1/10W
R8	1-216-097-00	RES,CHIP	100K	5%	1/10W
R31	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R32	1-216-133-00	METAL CHIP	3.3M	5%	1/10W

Ref. No.	Part No.	Description			Remark
		< VARISTOR >			
SA1	1-801-271-21	VARISTOR (VF07M10820K)			
		< SWITCH >			
SW1	1-692-207-21	SWITCH, SLIDE (RINGER LEVEL)			
SW4	1-692-494-11	SWITCH, HOOK (HOOK)			
		< DIODE >			
ZD1	8-719-155-07	DIODE RD27EL2TN			
**********					
*	A-3622-326-A	HAND MAIN BOARD, COMPLETE (CND)			
*	A-3622-366-A	HAND MAIN BOARD, COMPLETE (MX)			
*	A-3622-367-A	HAND MAIN BOARD, COMPLETE (LA)			
		**********			
		< CAPACITOR >			
C11	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C12	1-126-163-11	ELECT	4.7uF	20%	50V
C13	1-126-176-11	ELECT	220uF	20%	10V
C14	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C15	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C16	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C17	1-162-638-11	CERAMIC CHIP	1uF		16V
C18	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C19	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C21	1-163-006-11	CERAMIC CHIP	560PF	10%	50V
C22	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C24	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C25	1-163-059-11	CERAMIC CHIP	0.01uF	10%	50V
C26	1-126-382-11	ELECT	100uF	20%	10V
C27	1-115-866-11	ELECT	4.7uF	20%	35V
C28	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C29	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C30	1-163-059-11	CERAMIC CHIP	0.01uF	10%	50V
C31	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C41	1-163-205-00	CERAMIC CHIP	0.001uF	5%	50V
C43	1-163-059-11	CERAMIC CHIP	0.01uF	10%	50V
C44	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C47	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C51	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C52	1-163-059-11	CERAMIC CHIP	0.01uF	10%	50V
C61	1-126-382-11	ELECT	100uF	20%	10V
C62	1-165-319-11	CERAMIC CHIP	0.1uF		50V

Ref. No.	Part No.	Description			Remark
C63	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C64	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C65	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C66	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C67	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C68	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C69	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C70	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C71	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C75	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C76	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C77	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C78	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C79	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C80	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C81	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C82	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C86	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
		< CONNECTOR >			
* CN5	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P			
* CN6	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D21	8-719-914-43	DIODE DAN202K-T-146			
D22	8-719-914-43	DIODE DAN202K-T-146			
D61	8-719-914-43	DIODE DAN202K-T-146			
D62	8-719-938-75	DIODE SB05-05CP			
		< IC >			
IC2	8-759-646-12	IC TEA1112AT/C1.518			
IC3	8-759-594-36	IC HM91510AP			
		< JUMPER RESISTOR >			
JP1	1-216-295-00	SHORT	0		
JP2	1-216-296-00	METAL CHIP	0	5%	1/8W
JP3	1-216-295-00	SHORT	0		
JP4	1-216-296-00	METAL CHIP	0	5%	1/8W
JP6	1-216-296-00	METAL CHIP	0	5%	1/8W
JP7	1-216-296-00	METAL CHIP	0	5%	1/8W
JP8	1-216-296-00	METAL CHIP	0	5%	1/8W
JP9	1-216-296-00	METAL CHIP	0	5%	1/8W
JP10	1-216-295-00	SHORT	0		
JP11	1-216-296-00	METAL CHIP	0	5%	1/8W
JP12	1-216-296-00	METAL CHIP	0	5%	1/8W
JP13	1-216-296-00	METAL CHIP	0	5%	1/8W
		< COIL >			
L1	1-414-181-11	INDUCTOR	4.7uH		
		< DIODE >			
LED1	8-719-072-84	LED LT1E40A			

Ref. No.	Part No.	Description			Remark
LED2	8-719-072-84	LED LT1E40A			
LED3	8-719-072-84	LED LT1E40A			
LED4	8-719-072-84	LED LT1E40A			
		< MICROPHONE >			
MIC1	1-542-161-11	MICROPHONE, ELECTRET CONDENSER			
		< TRANSISTOR >			
Q41	8-729-804-21	TRANSISTOR 2SA1319TP-S			
Q42	8-729-803-98	TRANSISTOR 2SC3332TP-S			
Q43	8-729-920-71	TRANSISTOR 2SA1037K-QR			
Q45	8-729-120-28	TRANSISTOR 2SC2412K-T-146-R			
		< RESISTOR >			
R11	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R12	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R13	1-216-045-00	METAL CHIP	680	5%	1/10W
R14	1-216-015-00	METAL CHIP	39	5%	1/10W
R15	1-247-791-00	CARBON	22	5%	1/4W
R18	1-216-820-11	METAL CHIP	820	5%	1/16W
R19	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R21	1-216-089-00	RES,CHIP	47K	5%	1/10W
R22	1-216-097-00	METAL CHIP	100K	5%	1/10W
R24	1-216-844-11	METAL CHIP	82K	5%	1/16W
R25	1-216-837-11	METAL CHIP	22K	5%	1/16W
R26	1-216-089-00	RES,CHIP	47K	5%	1/10W
R29	1-216-821-11	METAL CHIP	1K	5%	1/16W
R34	1-216-089-00	RES,CHIP	47K	5%	1/10W
R36	1-216-838-00	METAL CHIP	27K	5%	1/16W
R37	1-216-836-00	METAL CHIP	18K	5%	1/16W
R41	1-216-113-00	METAL CHIP	470K	5%	1/10W
R45	1-216-246-00	RES,CHIP	100K	5%	1/8W
R46	1-216-033-00	METAL CHIP	220	5%	1/10W
R47	1-216-843-11	METAL CHIP	68K	5%	1/16W
R51	1-216-809-11	METAL CHIP	100	5%	1/16W
R52	1-216-097-00	RES,CHIP	100K	5%	1/10W
R54	1-216-833-00	RES,CHIP	10K	5%	1/16W
R61	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R62	1-216-049-11	RES,CHIP	1K	5%	1/10W
R66	1-216-198-00	METAL CHIP	1K	5%	1/8W
R67	1-216-121-00	RES,CHIP	1M	5%	1/10W
R68	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R71	1-216-119-11	METAL CHIP	820K	5%	1/10W (MX)
R72	1-216-119-11	METAL CHIP	820K	5%	1/10W (LA)
R78	1-216-864-11	METAL CHIP	0	5%	1/16W
R79	1-216-834-11	METAL CHIP	12K	5%	1/16W
R82	1-216-797-11	METAL CHIP	10	5%	1/16W
R83	1-216-797-11	METAL CHIP	10	5%	1/16W
R84	1-216-797-11	METAL CHIP	10	5%	1/16W
R85	1-216-797-11	METAL CHIP	10	5%	1/16W
R86	1-216-033-00	METAL CHIP	220	5%	1/10W

HAND MAIN

Ref. No.	Part No.	Description	Remark
		< RECEIVER >	
RCV1	1-550-648-11	RECEIVER, DYNAMIC	
		< SWITCH >	
SW2	1-762-890-11	SWITCH, SLIDE (HANDSET VOLUME)	
SW3	1-762-889-11	SWITCH, SLIDE (DIAL MODE)	
		< VIBRATOR >	
X1	1-579-673-21	VIBRATOR, CERAMIC (3.58MHz)	
		< DIODE >	
ZD2	8-719-160-56	DIODE RD12FB2	
ZD4	8-719-101-50	DIODE RD5.1EL2TN	
**********			
		MISCELLANEOUS	
		**********	
7	1-791-591-01	CORD, CURL (GRAY)	
7	1-791-591-11	CORD, CURL (WHITE)	
56	1-771-726-11	SWITCH, RUBBER KEY	
J1	1-695-256-41	JACK, MODULAR (H.S) (CRADLE)	
J2	1-695-256-21	JACK, MODULAR (H.S) (HANDSET)	
J3	1-793-684-21	JACK, MODULAR (LINE) (CRADLE)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-696-453-11	CORD (WITH MODULAR PLUG) (LINE) (215cm)	(CND)
	1-696-454-11	CORD (WITH MODULAR PLUG) (LINE) (15cm)	
	3-866-947-11	MANUAL, INSTRUCTION (ENGLISH,SPANISH)	(LA)
	3-866-947-21	MANUAL, INSTRUCTION (ENGLISH,FRENCH)	(CND)
	3-866-947-31	MANUAL, INSTRUCTION (ENGLISH,SPANISH)	(MX)
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-546-14	SCREW +BTP 3X8 TYPE2 N-S	
#2	7-685-533-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#3	3-040-763-01	SCREW (8.0) (H) (2.6), +PTPW	
#4	7-685-138-19	SCREW +P 2.6X16 TYPE2 NON-SLIT	
#5	7-687-233-11	SCREW (+PTPWH) (2.6X6)	

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Digital Telecommunication Company

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